Simplifying fractions

Exercise 1

Where possible simplify the following fractions. No one strategy is the best for all problems, so use the one that is easiest for each question. Explain what method you are using for each.

1) $\dfrac{6}{12}$ (2) $\dfrac{3}{12}$ (3) $\dfrac{8}{24}$

4) $\dfrac{9}{15}$ (5) $\dfrac{20}{30}$ (6) $\dfrac{14}{21}$

7) $\dfrac{36}{66}$ (8) $\dfrac{24}{48}$ (9) $\dfrac{25}{40}$

10) $\dfrac{54}{60}$ (11) $\dfrac{54}{62}$ (12) $\dfrac{29}{58}$

13) $\dfrac{19}{27}$ (14) $\dfrac{32}{38}$ (15) $\dfrac{18}{72}$

Exercise 2

Katie and Ngaere are having an argument. Katie says that when simplifying a fraction like $\dfrac{78}{9}$

it is best to simplify first, then convert to a mixed number. Ngaere reckons it is much easier to convert to a mixed number then simplify. Try the following problems using both strategies, and decide which is best. Explain what you think is the best approach to simplifying such fractions

1) $\dfrac{54}{8}$ (2) $\dfrac{17}{4}$ (3) $\dfrac{57}{6}$ (4) $\dfrac{111}{9}$

Exercise 3

Simplify the following fractions using the most sensible method. Give the answers as mixed numbers.

1) $\dfrac{44}{7}$ (2) $\dfrac{52}{16}$ (3) $\dfrac{47}{19}$ (4) $\dfrac{69}{9}$

Exercise 4

The following fractions have been simplified in some way. What is the missing number that goes in the box?

1) $\dfrac{16}{20} = \dfrac{\square}{5}$ (2) $\dfrac{16}{24} = \dfrac{\square}{3}$ (3) $\dfrac{\square}{63} = \dfrac{8}{9}$ (4) $\dfrac{26}{39} = \dfrac{2}{\square}$

5) $\dfrac{34}{\square} = \dfrac{2}{3}$ *(6) $\dfrac{\square}{8} = \dfrac{15}{20}$ *(7) $\dfrac{\square}{28} = \dfrac{9}{12}$ *(8) $\dfrac{8}{6} = \dfrac{\square}{15}$

Answers

Exercise 1

1) $\dfrac{1}{2}$ e.g. 12 is double 6

2) $\dfrac{1}{4}$ e.g. 3 & 12 are in the 3 × tables – cancel the common factor (3)

3) $\dfrac{1}{3}$ e.g. 8 & 24 are in the 8 × table – cancel the common factor (8)

4) $\dfrac{3}{5}$ e.g. cancel common factor

5) $\dfrac{2}{3}$ e.g. cancel common factor (10)

6) $\dfrac{2}{3}$ e.g. cancel common factor (7)

7) $\dfrac{6}{11}$ e.g. halve top and bottom, then cancel the common factor (3)

8) $\dfrac{1}{2}$ e.g. 48 is double 24

9) $\dfrac{5}{8}$ e.g. cancel common factor (5)

10) $\dfrac{9}{10}$ e.g. cancel common factor

11) $\dfrac{27}{31}$ e.g. halve top and bottom

12) $\dfrac{1}{2}$ e.g. 58 is double 29

13) $\dfrac{19}{27}$ e.g can't simplify, 19 is prime

14) $\dfrac{16}{19}$ e.g. halve top and bottom

15) $\dfrac{1}{4}$ e.g. cancel common factor (9), then halve top and bottom

Exercise 2

There is no correct answer to this – it is a personal choice thing, and can depend on the numbers too. I usually find it easier to convert to a mixed number first then simplify – the numbers become smaller and easier to simplify

1) $6\tfrac{3}{4}$ (2) $4\dfrac{1}{4}$ (3) $9\tfrac{1}{2}$ (4) $12\dfrac{1}{9}$

Exercise 3

1) $6\dfrac{2}{7}$ (2) $3\dfrac{1}{4}$ (3) $2\dfrac{9}{19}$ (4) $7\dfrac{2}{3}$

Exercise 4

1)   □ = 4   (2)   □ = 2   (3)   □ = 56   (4)   □ = 3

5)   □ = 51   (6)   □ = 6   (7)   □ = 21   (8)   □ = 20